

Lecturers seek pay arbitration

by David Jobbins

Lecturers' leaders want the long-running dispute over introduction of private pay rates for part-time teaching staff to go to arbitration. Their conviction that negotiations have reached the end of the road follows rejection of the latest management offer by the national executive of the National Association of Teachers in Further and Higher Education.

The package, turned down at the weekend, included new money equivalent to about 10 per cent on the annual part-time salary bill of £40m which management said could be used to achieve greater productivity.

But this week it was the local authorities' turn to express doubts that the negotiations—stretching back to the Clegg recommendation in April—had fully broken down. Before the independent chairman of the Burnham committee, Mr John Wordie, can agree to a reference to arbitration, he must be convinced there has been a total breakdown and further negotiations are pointless.

No date has yet been fixed for

a Burnham further education committee meeting, but it was expected that one would be called fairly quickly once formal notification of the teachers' panel's view was received.

Soon after the Nafhe executive decision, the other organizations represented on the teachers' panel indicated support, and Nafhe general secretary Mr Peter Dawson was due to send off formal notification of the position late this week.

The two sides, agreed in principle but deeply divided over the practical implications, have agreed arbitration on at least two occasions but there has been a genuine reluctance to resort to arbitration so soon after the independent assessment of the 1980 pay claim.

In the background during the negotiations has been the management warning that too much too soon could have the consequences for adult education, where many part-timers are concentrated.

Mr Keith Scribbins, Nafhe's assistant secretary for salaries, accused the local authorities of inconsistency in "savouring" adult education while warning it would

collapse if pro rata pay was conceded.

"You cannot expect the service to survive on the basis of exploitation of part-time staff any longer," he said.

A declaration of "intense irritation" at the five month delay in implementing the Clegg suggestion has come from Nafhe's inner London region part-time subcommittee.

Welcoming the Nafhe executive's demand for arbitration, the subcommittee added: "Outside arbitrators cannot fail to see the justice of our claims for parity and clear up this long standing anomaly."

Many part-timers working substantial hours—20 hours a week and more—are of Inner London Education Authority colleges. Salaries are up to 50 per cent below established rates for full-time staff and part-timers lack the job security and fringe benefits enjoyed by others who may be doing almost identical work but on a full-time basis.

The subcommittee says: "Continuation of this state of flexible casual labour represents a threat to the continuation of large sections of higher, further and adult education in the current climate."



Birmingham University's cancer research team is determined to build on its past success after hearing that an award of £1.5m has been confirmed by the Cancer Research Council.

Professor David Hornden (seated), head of the department of cancer studies, with two members of his staff, Dr Phillip Gallimore (left) and Dr Malcolm Taylor, who have played a major role in developing knowledge of genetic susceptibility

to cancer and cancer-causing viruses, will be moving in 1983 to a new building financed by the campaign.

The remaining £100,000 will be spent on new equipment. In addition this campaign is increasing its annual support for the department by around one-third, or £30,000.

The work in the new building will concentrate on three areas: epithelial cell studies, cellular virology and cancer genetics.

Government denies 'cut'

Government spokesmen this week denied that the Cabinet had ordered a further cut of more than £50m in the education budget.

A newspaper report published last week claimed that the decision had been taken against the wishes of Mr Mark Carlisle, Secretary of State for Education, as a direct result of the Government's defeat over school transport charges.

But the Department of Education and Science said expenditure plans for 1983-84 were still under consideration by ministers. Although a 2 per cent reduction in local government expenditure had been recommended by the Expenditure White Paper, no final decision had been taken and the distribution of any cuts would be a matter for individual authorities.

The local authority associations reacted sceptically to the report since they did not expect decisions on next year's budget for as long as another month. They ruled out the possibility of such savings being found during the current financial year.

Both associations said they had no indication of further cuts and would have expected to be consulted on any major change of policy.

The major fringe budget change announced by the DES has been the provision of an extra £350,000 to finance new projects on careers and teacher training courses. Expenditure on these projects was included within the DES budget after an unexpectedly large number of applications took on the entire £350,000 and applied to nearly 500 projects.

More than 700 graduates aged 25 or over applied for the course this year compared with 480 last year. Applicants are regarded as most necessary but even since applications for 1983-84 courses remain more than 20 per cent below the number of places available.

£40,000 boost for Whistler fund

The fund to keep Great Britain's prized Whistler Collection intact has been boosted by a £40,000 donation from the Glasgow-based British National Corporation.

The collection will be preserved only if the university manages to raise £85,000 by the middle of September, its target to be met by the National Heritage Memorial Fund.

The university reluctantly decided last year that if it failed to raise the money, it would have to sell the collection to the nation.

However, £145,000 was raised through public donations by the end of July.

The university had anticipated that the heritage fund would intervene to meet the shortfall, but it was delayed when the appeal had officially closed.

It would match to a total of £145,000, which was raised from the sale of the collection.

The university's chairman, Mr Alexander Cairncross, said the university was deeply grateful for the BNC's generous donation. Since the reopening of the appeal, only £3,000 had been raised through the appeal, but the university's appeal had been successful in raising the total to £145,000.

YOP trainees in poor shape

by Patricia Sandinell

Some entrants on to the Youth Opportunities Programme seem to be suffering from long term malnutrition, are physically debilitated and will remain unemployed, a draft of a survey in the West Midlands has revealed.

This bleak information emerges from a YOP survey carried out by the West Midlands Regional Curriculum Unit which was set up in 1979. The survey set out to identify and recommend means of tackling problems of curriculum planning and implementation for the further education elements of YOP.

It shows that in the West Midlands, which has the highest percentage in the national total of unemployed 16-19-year-olds, college staff are very concerned that many of the long term unemployed youngsters are in poor general physical condition.

One college describes trainees as being smaller, weaker, than other students, probably as a result of long term malnutrition. Others seemed to be in need of speech therapy as their speech was so poor they appeared stilted.

Some colleges were recommending that trainees should have access to medical care in the colleges. But the report says that it is often difficult for college staff to introduce improvements such as health care.

The report proposes that a programme of medical care should be broadened to take account of the increasing labour market and change its emphasis to preparing young people for employment. This would require more flexibility in the types of skills being taught and more stress on providing young people with a basis for continuing their education beyond the programme.

Boyson flies to US for student loans research

by Paul Flather

Dr Rhodes Boyson, under-secretary of state for higher education, left this week on a fact-finding tour of the United States to assess "grass roots" feelings on the thorny question of student loans.

Before leaving on his two-week tour, Dr Boyson confirmed that the government was preparing a report on the feasibility of introducing a loans system in Britain.

But he added that he had not made up his mind one way or the other. "I want to see how the system works at the grass-roots. I shall not be looking at the philosophy, but at the nitty-gritty in the States," he said.

Dr Boyson's tour will take him to four states: Oregon, California, Texas and Illinois. He will visit Berkeley, Stanford, Utah and the University of California at San Diego, and Washington, DC.

He will be talking to students, college bursars, banks and foundations who award loans, and former students in the process of paying back loans.

College governors attack merger plan

The governors of Edinburgh's prestigious College of Education have criticised government plans to merge the Royal Catholic College with another institution in the east of Scotland.

The Scottish Secretary Mr George Younger announced last month that two of Scotland's 10 education colleges, Hamilton and Glasgow, would close and their staffs be merged with another college generally thought to be Edinburgh's Mary House, the country's second

largest college.

In a letter to Mr Younger, the chairman of Glasgow's board of governors, Mr Patrick J. Gredy, wrote: "There must be a clear appreciation of the fact that Glasgow is a different type of educational institution from any other teacher training establishment."

Like the Catholic schools, it serves a large proportion of those who wish to express Christian values in education.

TUC launches campaign for more students

The Trades Union Congress is to launch a campaign to encourage a higher participation rate in higher education, especially for mature students and women.

The initiative is part of a six-point programme covering the education of young people, adult education and training, and a greater commitment to continuing education.

It was launched in a composite resolution passed unanimously by the TUC's annual conference, which was held in Glasgow at the end of last month.

The resolution calls for a "concerted effort" to encourage more people to take up higher education, and for the government to "take steps to ensure that the education system is open to all who wish to take it up."

The TUC also calls for the government to "take steps to ensure that the education system is open to all who wish to take it up."

The debate took place against a climate of repeated calls for expansion of education and training for the 16 to 19 age group. The impact of unemployment among young people has been a major concern of the government.

The initiative behind the decision to seek a higher participation rate came from the 32,000 member Association of University Teachers, which has been successful in securing a 10 per cent increase in its members' salaries.

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Earlier Mr Clive Jenkins, chairman of the TUC Education Committee, had said: "The government's higher education policy is a disaster. It is a waste of public resources and money to allow the 3,000 researchers currently unemployed to remain idle."

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SRC calls for £10m gamble fund

by Robin McKie
Science Correspondent

Universities should take more responsibility for research and set up a £10m fund for high-risk projects. These should be taken up by research councils if they proved promising.

This proposal forms the basis of the Science Research Council's evidence to the Merrison Committee, which is investigating the dual support system—the basic mechanism for financing research at universities.

In recent years research councils have become concerned about the amount of their money used to provide basic equipment for departments—a task that should be the role of the University Grants Committee.

To combat this the SRC—in its evidence to the Merrison Committee—has proposed the setting up of a £10m fund for high-risk projects. These should be taken up by research councils if they proved promising.

The scheme is favoured by several members of the committee although much will depend on the views of the UGC's representative, Dr Edward Parkes, its chairman, who has not yet responded to the plan.

It is considered attractive because it needs only slight tinkering with budgets whereas other alternatives would require the scrapping of the whole dual support system.

Some action will have to be taken because

the research councils' budgets are so severely strained they cannot take on the role of equipment funding that should be carried out by the UGC. Recently the SRC science board had to reject about a third of the best research proposals it received and several Nobel Prize-winning chemists are being given less than £1,000 a year by universities to equip departments.

Civil servants at the Department of Education and Science are now attempting to collect statistics which will reveal improved information about research funding and its sources for the committee. This task is being hampered by the variety of different accounting techniques employed by universities to record the origins of their grants and funds. (This task has also caused problems for another DES inquiry, led by Professor Sir Peter Swinerton-Dyer, into postgraduate supply.)

As a result the committee, which was established early this year, is not now likely to report until the New Year.

US research helped to flourish again

from Clive Cookson
North American Editor
WASHINGTON

President Carter has promised to restore the 3 per cent real growth in Government support for basic research, which he proposed last January in the original version of his 1981 budget and then sacrificed in his April package of public spending cuts.

The administration's change of heart over the science budget was part of a general U-turn in fiscal policy, which Mr Carter announced as the presidential election campaign was getting under way. The "economic recovery programme" as he called it, included a proposal to increase federal expenditure on science and technology by \$300m in the fiscal year 1981 and a further \$300m in 1982.

"With this commitment, funds for basic research will grow in real terms by 3 per cent per year," the White House said. Although university spokesmen did not see how the extra funds promised could produce a 3 per cent real growth unless inflation subsidies extraordinarily fast,

they were pleased by Mr Carter's announcement.

Now that the President and Congress have abandoned the anti-inflationary "balanced budget" that seemed so precious four of five months ago, in favour of tax cuts and additional spending to pull the United States out of its current recession, the prospects for the science budget suddenly look brighter.

Although details of the extra research support for 1981 and 1982 will not be announced until January, the President's science adviser, Frank Press, has indicated roughly how the \$600m will be divided up. Universities were delighted to learn that a significant portion—probably \$50m in 1981 and \$70m in 1982—is to be spent on a new programme to upgrade research facilities and instrumentation.

In recent years academic laboratories have fallen well behind equivalent industrial labs in the age and quality of their equipment, and in some fields (especially engineering and computing) the gap has widened to an increasingly difficult for universities to attract good researchers in competition

with the private sector.

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Committee may change policy and propose power transfer

Mr John O'Leary, radical proposals for a major transfer of power in higher education, there is a real chance of success.

Much will depend on Mr Price's chairmanship for, although Mr Greenway may support an amended form of the Thomas/Thomas document, he is unlikely to favour its total substitution for the official draft.

The other Conservatives on the committee regard the alternative as a failed out of order because it does not address itself to Mr Price's draft. They are angry that Mr Thomas and Mr Thomas produced their own report without attending the weekend session at which the heads of the official document was thrashed out.

Mr Price's draft, which is understood to recommend the establishment of a national body for planning public sector higher education and the abolition of regional advisory councils, has been altered slightly over the summer to satisfy Conservative demands for more powers.

Some 40 amendments have been tabled for today's meeting.

Czech visits 'must go on'

Czech philosopher, Dr Julius Tomin, this week appealed for students and academics to continue with informal visits to Czechoslovakia.

Dr Tomin, who arrived with his family in Britain last week, said such visits provided enormous scope for students and intellectuals trying to work and study outside the official state education system in Czechoslovakia.

He referred to the visits made by Oxford philosophy dons, three of whom were expelled for criticism of the series of unofficial seminars he ran in Prague, and to a visit made by a student, Angus Carrill, who was also expelled.

He urged the best way to proceed was by informal meetings and discussions, by taking ideas "for a walk" in the Socratic manner. This would not provide expulsions.

"The need for contact with people from the West is really essential. Students will be prepared to learn and speak English if they know people are willing to continue to talk with them," he said.

Dr Tomin revealed that three of the group who were persistently harassed and beaten up by security police for attending his seminars, are also applying for exit visas to study in Britain. They are Tomas Jizka, Lukas Dvorakova, and Ludak Badar.

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Redefine 'overseas' says CRE

by John O'Leary

An initiative was launched this week to persuade the Government to relax its controversial regulations defining on overseas student.

Seven agencies concerned with race relations and student affairs met under the aegis of the Commission for Racial Equality and agreed to make a joint approach to the Department of Education and Science.

The CRE has asked for a preliminary meeting with DES officials in the next few weeks, hoping to influence only new guidance that may follow new regulations of ordinary residence emanating from the courts. Three judgments have been given during the summer and at least one more case is pending.

Allowing for appeals in at least two of the cases it is certain to have several months before ministers decide whether to issue new guidance. Mr Carlisle, Secretary of State for Education, has always maintained that residence qualifications

are a matter for determination by the courts and no action would be taken until case law had been established.

However, the pressure groups, which include the National Union of Students, the Joint Council for the Welfare of Immigrants and the National Council for Community Relations Councils, believe that the precedents should allow the Government to shorten or even abolish the three-year qualification period.

Mr Alan Parker, deputy secretary of the United Kingdom Council for Overseas Student Affairs, said: "There will have to be some new guidance as a result of the current cases and it seems to us that our guidance has been established as something valid under the law. It is simply causing hardship to a number of recently arrived immigrants."

Community relations councils and UKCSA are dealing with

cases connected with residence than ever before. Many students who previously qualified as home students are now treated as having to pay fees at the overseas rate, while the practice between institutions varies on which regulations to apply for students given conditional offers early in the year.

Since the new regulations operate from February, students joining courses this year are treated differently according to the timing of offers. At least one institution has changed its method of assessment after dealing with the majority of its applications.

New guidance will not be easy to formulate since the recent judgments are not wholly consistent. Whereas Lord Justice Ormrod's judgment on two cases in July turned on the intention of the student to "live, study and remain" in Britain, Sir Robert Megarry, later the same month, used as his test the more nebulous concept of a student's "centre of gravity".

Paul Flather interviews Czech dissident Dr Julius Tomin in Oxford



Dr Julius Tomin with his family in the garden of their new home.

Philosophy behind a flight to freedom

Dr Julius Tomin, the Czech philosopher who ran a series of unofficial seminars in Prague for almost three years, said this week he and his family planned to return to Czechoslovakia in five years as free citizens.

Dr Tomin is a remarkable man. Slitting in the bedroom of his new home in north Oxford he told why he was forced to apply for an exit visa from his country and the blackouts he had faced from the security police.

At first he was told it was impossible to leave the country, except in the "interests of the state." He was then asked to sign a document saying he would not engage in any anti-Czech activities.

Before he signed, he said, "but not before I said I was deeply convinced that there was only one way in which I myself could harm the interests of Czechoslovakia abroad and that was the moment I stopped behaving, thinking and talking freely."

He told the Czech authorities he would carefully weigh every word he used, but of course he was not responsible for the context in which they were put.

"During all the years I lived in Prague I lived as a free person as far as it was physically possible. I still continue to do so."

At first, Dr Tomin said, he felt like a "caged animal." It was very demoralising. I felt extremely tired. I did not know what I could do with my students. The visits from the West gave him energy to continue.

But constant harassment forced him to abandon the seminars. He said everyone he knew, his friends, his students, were endangered.

So regular meetings had to become irregular. He had to hide his seminars, his cigarettes, his books, his radio, his TV, his car, his money, his family.

He said he was now in a "cell" and he was now a "prisoner". He was now a "man in the street". He was now a "man in the street".

Measures would be taken to counter all three possible effects and he was confident the next test launch, in February 1981, would be successful.

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that they become conspirators in that victory?

Abundant of the seminarists, the family, he considered, left Prague. "It was hard to imagine that anything positive could come of it. It was a dead-end. The only escape seemed a sort of isolation," he said.

The family was also concerned that Lukas, aged 17, had for the last year been denied access to his high school after "complex evaluation", a euphemism for condemning the activities for his parents, Lukas and Marek, aged 15 and 16, to the security police.

He focused his attack on the rule which he described as "Catch 21", which prevents students from being able to claim supplementary benefits if they study more than 20 hours a week.

Young people are told they need to get better qualifications to get jobs, but instead they face an obstacle race of rules and regulations and rejections, including this "Catch 21", he said.

"For every penny the Government owes on education today it could well have to pay out at least twice as much on law and order tomorrow," he told the union's annual training conference for student union officers at Reading University.

He asked university and college student union leaders to prepare for a Government to put more money into education and to challenge Dr Rhodes Boyson, undersecretary of state for higher education, to a debate on Conservative policies.

"HMS Education" can now be seen as a rudderless ship with Captain Carlisle tied to the mast by the Treasury lurching in direction from crisis to crisis.

Major inconsistencies in education aid training for 15 to 19 year olds were becoming increasingly serious as a result of growing unemployment, falling rolls and cuts in public expenditure, Mr Jack Mansell, the new director of the Further Education Unit said last week.

Speaking at the annual conference of the London and Home Counties Regional Advisory Council for Technology in Education in Bristol, Mr Mansell said that the present provision was based on a hierarchy of assumed destinations and implicit assumptions.

"What is needed is an immediate re-appraisal of the established routes for this age group, both in terms of prestige and resource allocation to them," he said.

He added that in vocational preparation courses there were inequalities which meant that those in employment received unified vocational preparation, unemployed young people went on to the Youth Opportunities Programme, and others were on full-time pre-employment courses.

Mr Mansell believed that the Further Education Unit's recommendations for a set of national criteria for pre-employment courses were currently being considered by the Secretary of State for Education, offered a partial solution.

"Its ultimate success will depend largely on Government's decision regarding the Certificate of Extended Education and the acceptance by both employers and trade unions of the 17-plus vocational preparation but not trained young person in work," he said.

Mr Mansell added that for those hitherto neglected by the system, a more flexible and dynamic concept of vocational preparation was required.

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Principals call for funding changes

by John O'Leary

College principals have won their battle for a voice in deliberations on a new system of financing public sector higher education. But their first act will be to call for changes to next year's interim funding arrangements.

Consultation on the recommendations of the Department of Education and Science study group for holding down unit costs during 1981-82 will begin next week. Policy directors and college principals will discuss the options with the Council of Local Education Authorities Higher Education Group before Dr Rhodes Boyson, Minister of State for Higher Education, begins his round of discussions.

The CLEA group is anxious to sound out the interested parties before presenting the local authority view on the alternative recommendations made by Mr Stephen Jones, DES group. Ministers are committed to full consultations before deciding between a straightforward freeze on unit costs or an agreed set of minimum and maximum charges to the pool.

Mr Gordon Cunningham, education officer of the Association of

County Councils, said in a speech last week he wanted to correct the misconception that the local authorities wanted to "go it alone" in setting up its own national body. On the contrary, it was local authority pressure which had led to the inclusion of institutional representatives on the funding group.

CLEA's next steps would be cautious, but firm and continuing. Mr Cunningham said they would be the essential first moves towards the establishment of a body able to speak for advanced further education in the public sector and, later, to take those decisions which require national agreement.

However, despite their meeting with the CLEA group next Wednesday, the college principals are to put their reservations about the recommendations for funding in 1981-82 direct to Dr Boyson. They will tell him that, while they are pleased to be included in the funding discussions, they fear that a new interim system could inflict new damage to the colleges and institutes.

A spokesman for the Committee of Directors of Polytechnics welcomed the talks with CLEA.

Student attacks 'Catch 21'

The Government's education policy is like a rudderless ship which lurches from crisis to crisis, the president of the National Union of Students, Mr David Aaronovitch, said this week in his first major speech since taking office.

He accused the Government of paying lip service to the importance of educating and training people aged 16 to 19 but doing nothing to help them financially.

He focused his attack on the rule which he described as "Catch 21", which prevents students from being able to claim supplementary benefits if they study more than 20 hours a week.

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Scientists seek Japan swop

by Robin McKie

Britain may join a programme to share research projects and exchange scientists with Japan. The move, which follows recent Science Research Council visits including a trip by the chairman, Sir Geoffrey Allen, will involve giving United Kingdom expertise in basic scientific areas in return for Japanese technological knowledge.

The British Council may also become involved by helping to settle British scientists in Japan and set up initial liaison for co-operative work. It is envisaged that three or four informal projects will be set up before any formal programme.

Britain would gain Japanese expertise in areas such as micro-electronics and biotechnology while we could provide advanced knowledge in computing, software programming and polymer science. Other involvement could include joint television films at some of the United Kingdom's major overseas observatory installations in return for space on board Japanese satellites.

The programme, still at a very early planning stage, is to be discussed at the SCA policy meeting later this month. The council's various boards are then expected to consider plans to encourage academics to carry out research projects in Japan.

At present many Japanese scientists visit Britain on research projects but there is little reciprocation. The United Kingdom could gain through experience of Japan's close industry-university links in scientific areas and their ability to do research work.

By encouraging post-doctoral workers or research staff to visit Japan, Britain would gain expertise in the commercial development of scientific work, while Japan would gain through our excellence in theoretical studies. It would also break their strong ties with the United States.

The decision "indicates a commitment to develop scientific co-operation with the United States."

The students' union claims that the increase, which compares with a saltwater rate of £21.80 last year, will cause an accommodation crisis for foreign students.

Chris Crowley, union president, said that the new fees were placing students out of the hall and "putting them on the street".

The union is claiming that 170 out of a total of 363 places in the hall are vacant due to the shortfall of overseas students.

The poly's accommodation officer, Sylvia Skilwell, said that the vacancies were nearer 100 than 170 at present and that these were not directly attributable to a poor take-up by foreign students.

She said that the new fees would be coming to the college yet, she said.

"Nevertheless I do not expect that many foreign students will be able to pay the new fees and have not allocated any places for them, I eventually do," she said.

"Overseas students have difficulty on the accommodation market anyway because of racial discrimination and halls of residence have traditionally offered them some security, particularly during the difficult adjustment period in their first weeks in London. The new rates are comparable with mortgage repayments on a house."

The college's finance officer, Mr Clifford Harris, blamed the new fees on ILEA's system of fixing prices.

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Scots FE staff press for own pay body

There may soon be a new negotiating body for Scotland's further education lecturers following a petition sent to the Scottish Secretary by the Scottish Further Education Association.

At present, further education lecturers are in the same negotiating body as schoolteachers, the Scottish Teachers' Salaries Committee, although they are on the same pay scales as lecturers in education colleges and central institutions, each of whom have separate salary negotiations.

The Houghton report of 1974, which investigated the pay of non-university teachers, recommended a separate negotiating body for all college lecturers on the SFEA scale called for Scottish Secretary Mr George Younger to implement this swiftly.

In the petition the association points out that in the recent dispute over teachers' salaries in Scotland, while it was willing to engage in arbitration, it was overruled by the policies of schoolteachers' unions which did not.

"For the negotiations of further

education lecturers to be dominated by the school sector is quite anomalous," said association general secretary Mr David Bleiman. This problem threatens to undermine the common salary structure for lecturers in the three different kinds of college.

The SFEA also wrote to all Scottish MPs and says a number of lending Conservative MPs have agreed to raise the matter with the Scottish Secretary and MPs of the three other Scottish parties have declared themselves firmly in support of the association's campaign.

The association has received a reply from Mr Younger's private secretary, which it described as "fairly encouraging".

The association says it will continue its campaign until the Government makes a definite statement, and adds: "If the Government is now willing to come forward with legislative proposals and to consult all interested parties on the details, Scottish FE lecturers may at last be able to stay out of the quagmire called the STSC, where our interests are currently bogged down."

Unions condemn CVCP move

The Association of University Teachers and the National Union of Students have again condemned a decision by vice-chancellors and principals to disband a central committee for the training of university lecturers.

The AUT and the NUS today sent a joint letter to the Committee of Vice-Chancellors and Principals calling for the decision taken in July to be reversed or its meeting at the end of September.

The decision "indicates a complacency with regard to training which can do nothing but harm to universities in the current financial and political climate," says the letter.

A spokesman for the CVCP con-

firmed that the decision to wind up the Co-ordinating Committee for the Training of University Teachers (CCTUT) was on the agenda of the next meeting.

The AUT and NUS are particularly angry because the decision was taken in spite of the recommendations of a special review group under Sir Harry Pitt, former vice-chancellor of Reading University, to double its grant to £40,000 a year and to ensure its life for at least five more years.

The letter signed by the NUS president, Mr David Aaronovitch, and AUT president, Mrs Liz-Anne Bowden, says individual universities are unlikely to take on extra responsibility for training lecturers.



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North American News

Security clamp down on code breakers

from Clive Cookson

WASHINGTON

The top secret National Security Agency (NSA) is trying again to clamp down on open academic research in cryptography, according to worried mathematicians and computer scientists who work in this rapidly growing field.

The making and breaking of codes has been a significant subject of university research only since the mid-1970s. Before then it was almost exclusively the preserve of military and intelligence agencies and, in the United States, particularly of the NSA, which has primary responsibility for monitoring worldwide communications for the American government.

From the start, the academics were uneasy about the NSA's worries about the national security implications of their work. On several occasions in 1977 and 1978, NSA is attempting to stop the National Science Foundation supporting projects whose results could impinge on its intelligence-gathering activities.

The NSA itself wants to fund such work on a conditional basis, which would lead to results being classified and therefore unpubliable. The agency's director, vice admiral Bobby Inman, therefore persuaded Richard Atkinson, who was director of the National Science Foundation, to let the NSA review all proposals for cryptographic research received by the foundation.

The first effects of this policy were felt last month by Leonard Adleman of the Massachusetts Institute of Technology and the University of Southern California. The foundation told him that it would not fund part of his work on computer codes, because the NSA wanted to support it instead.

According to a report in Science, Adleman himself called Dr. Atkinson the next day to propose NSA funding in place of the withheld foundation grant. Dr. Adleman refused the offer because the

California adopts computer link

The California State University and Colleges are to spend \$50m on a new computer network, linking its 14 campuses in what is believed to be the largest computer installation ever undertaken by an academic institution. After it is completed in two years time, 165,000 students—more than half the total university enrolment—are expected to use it.

At the heart of the statewide network will be 21 CYBER 170 series 700 computers, one for each campus and two at the state university data centre in Los Angeles. Altogether, they will have 2,747 terminals for use by students.

The system, which is to be supplied by the Control Data Cor-

Carter promises more money

continued from page one

poration of Minneapolis, will be applied to all areas of campus management and administration, as well as to education and research.

Mr. Carter said the system would be a "major step" in the development of a new era of computing, one which would be used by the state university system to help attract and retain highly qualified faculty members.

Another major area for increased expenditure is computer research. The research involving industry, universities and government. Two specific long-term projects of this sort are due to get under way next year. One is an ocean margin drilling project, to increase geological knowledge of the sea bed beyond

'Back to school' figures reach new peak

from our North American editor

The opening of this academic year in the United States has been marked as usual by the release of new official statistics about American education.

The annual "back to school" forecast by the National Centre for Education Statistics projects an increase of 1.1 per cent in total college and university enrolment for 1980/81. That would bring the number of students in the United States to another all-time high of 11.7 million.

This century's peak enrolment is likely to be reached either this year

or next, the centre says. After 1981 small annual decreases in student numbers are forecast for the rest of the decade.

The number of American high school pupils is now falling quite fast; a 2.8 per cent decrease in 1979 is expected this autumn. At the elementary school level the steady enrolment decline, dating back to 1969, is beginning to bottom out, and the centre expects numbers to rise again from the mid-1980s.

That projection, with its promise that the supply of traditional college students will begin to rise again in the late 1990s, is supported by the latest birth rate figures. The

Census Bureau now expects the 1981 small annual decreases in student numbers are forecast for the rest of the decade.

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Doctors tap artificial intelligence

from Charlotte Beyers

PALO ALTO

In an intensive care unit at a San Francisco hospital, John Smith broaches laboriously. He is recovering from open heart surgery. A half-dozen leads monitor his blood pressure, expired carbon dioxide, pulse rate, urinary output and other critical measurements.

At an ivory tower university, a chemist wonders what chemical structure he needs to make a hormone. An engineer wants to know if he should continue drilling an oil well.

Stanford computer scientists working in the domain of Artificial Intelligence have already created systems that can help these people.

Dr Edward Feigenbaum, chairman of the computer science department, prefers to think of Artificial Intelligence as knowledge engineering. "We put the top minds in each area and form what is in effect a pool of the most advanced thinking in each field. We are miners extracting the gemstones of knowledge which are the private preserve of expert practitioners," he says.

With a group of university collaborators around the United States, Stanford professors have devised a series of computer programs to help users make more informed decisions in the fields of chemistry, engineering and medicine.

The programs are available at SUMEX-AIM, a computer centre in the Stanford Medical School to specially selected collaborators.

"Commercial use is on the horizon for many of our systems," Dr



The Cert is designed to explore outer space.

Feigenbaum adds: "DENDRAL is already in wide use. Like the other AIEX programs, it can be used as a consultant or problem-solving assistant. Designed to help organic chemists determine the molecular structure of unknown compounds, it identifies chemicals by analytical procedures including mass spectrometry.

MOLGEN provides intelligent advice to a molecular geneticist on the planning of experiments involving the manipulation of DNA. Geneticists have various techniques such as cuts, joins and insertions for changing DNA material.

The VIM or Ventilator Management system monitors patients who are unable to breathe on their own, but need a respirator. At a glance it will provide the physician with a summary of the patient's condition. It can also recommend changes in therapy.

Another program, MYCIN, helps diagnose patients with severe infections such as meningitis. It can explain which of three kinds of meningitis a patient has and can recommend treatment. This model is not yet available.

INTERIST, developed at the University of Pittsburgh, may eventually be used to help health workers make diagnoses based on clinical evidence.

PARRY, developed by Dr Kenneth Colby at the University of California, simulates the way a person thinks. "If asked why he is hospitalized," the machine

Overseas News

Staff strike over occupation

by John O'Leary

Teachers in schools and colleges throughout El Salvador began a national strike this week in protest at the closure and occupation by the army of the country's only public university.

The National University was taken over by the army on June 25 while a press conference given by the Revolutionary Co-ordination of the Masaca was in progress on the campus. Estimates of the number of students killed in the ensuing fighting vary between 40 and more than 200.

Since then, the campus has been closed, the 20,000 students sent home and 2,000 staff left without pay. The Government has said it may reopen the university in January.

It claims that the closure was necessary because the university

was a centre of revolutionary activity and was being used to store weapons. Staff and students have denied this and called on the United Nations' Commission on Human Rights and the International Red Cross to investigate.

Now the main teachers' union, which has had 69 members murdered since this year, has begun an indefinite strike. It is demanding an end to repression against the teaching profession, an indemnity for the families of those assassinated, the release of teachers who have disappeared and opposition to foreign interference in El Salvador.

Last week a professor from the National University Inhabited British teaching unions at the Trades Union Congress, seeking support for the strike and financial aid for the families of the dead. 195 children have been killed, a result of this year's assassinations.

The professor told THE TIMES:

Homeless students forced to sleep in tent for 400

from Annelise Hopson

COPENHAGEN

When the universities and institutes for higher education started this month, 5,250 students throughout Denmark were without a college room. In Copenhagen the situation is in particular catastrophic as 3,200 students are without lodging, including students who have applied for a room within the private sector.

In Copenhagen there are five to six applicants a room, about 30 per cent more than last year, in spite of the fact that admission to the various faculties has been restricted.

In protest against the housing situation, the students last week put up a large tent on the grounds of the University of Copenhagen at Amager, an island south of the capital. This will house about 400 of those students who do not bring their own tent.

The chairman of the Danish Students' Union, Kim Carstensen, expects a push on the tent camp this week when the universities here start.

The Minister of Housing, Mr. Erling Olsen, has suggested that the students continue to live at

home but in the case of Copenhagen it seems difficult since some 70 per cent of the students come from other parts of the country.

The Minister also suggested that the students try to get accommodation in the western part of Sweden in Landskrona across the Baltic Strait where housing problems are considered less acute in Copenhagen. This suggestion resulted in strong protests from the various students' committees.

Another matter is that the ferry now calling the short distance between Copenhagen and Landskrona stops operating on October 1, now.

When talking about the meeting between the students' organisations and the Minister of Housing, Hildebrandt, The National Committee of Co-operation of the Educational Youth, says: "We told the Minister that the situation was quite reprehensible and all he said was that he could do nothing. The students' union, however, has promised that 750-800 living quarters for the year would be constructed each year but this will only be 19 to 21 per cent of the total since that and that promise was made in 1978."

Decree fails to help part-timers

Academic staff are obliged to attend their faculties for 250 hours a year. In order to qualify as a lecturer, they must also have a government decree published last month.

And for just an additional 100 working hours a year academic staff can be classified full-time, a category that carries an automatic wage increase of about 20 per cent. The long-awaited decree aimed at ending staff absenteeism on the grounds that each professor can work either part or full-time teaching.

The decree fell well short of expectations. Its original draft in 1976 intended to force all academic staff into the full-time category and prevent part-timers from teaching on the campus as "a side-line" activity. It also intended to give the staff the right to work on the campus as far as a year-on-year basis.

Staff classified as "researcher" will be awarded the right to use the department's facilities, their dependence on the annual whims of their faculty heads, the so-called "university".

The third teaching category is reserved for "researchers" into this category. Full-time scholars will be awarded next year during a public examination presided by the National University Council.

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Colleges join the long queue for autonomy

The University Grants Commission is receiving steadily growing numbers of applications from colleges for affiliation to universities. For many of these colleges, long been chafing at what they consider to be the straitjacket of affiliation to universities which are, for the most part, examining bodies.

They must adhere closely to university-prescribed curriculum, syllabi and textbooks, the most pre-emptive of their autonomy for university conducted and university devised examinations. They must accept

"We fear that more teachers will die during the strike at the hands of the government and the paramilitaries."

"The university was unique in providing somewhere for people to talk openly. El Salvador has many problems and the closure of the university is just one example."

Some 15,000 of the country's 24,000 school teachers are in the union which has called the strike and its leaders are hoping to attract support from many of those outside the union as well.

The El Salvador Solidarity Campaign has based itself in London and is organising a letter-writing campaign to the Minister for Education, Dr Aris Puh, warning them that most of these savings would have to be found from the personnel sector of the universities' budgets. Both new and existing staffs would be affected across-the-board salary reductions or considerable redundancy necessary in order to achieve the required objectives.

This followed the apparent failure of Dr Pais to persuade his Cabinet colleagues to adopt an alternative economy plan under which all workers—not only those in education—would have to make some sacrifice in holiday pay in order to avoid the necessity of achieving savings by putting university staffs out of work.

Israelis on fund-raising tour of US

from Benny Morris

JERUSALEM

Hebrew University president Avraham Harman last week left Israel on a two-month fund-raising tour of Europe and the United States to help extricate the prestigious Jerusalem University from its economic straits.

A university spokesman noted that a trip of this length for the ailing, 66-year-old Harman was "highly unusual" and indicated the severity of the crisis.

Indeed, the Hebrew University authorities are keeping their fingers crossed about the actual opening of October 26. University rector Professor Ronniel Meichouam told me that the country's six universities and the post-graduate Weizmann Institute are facing a similar crisis. Their lecturers are owed \$10m in retroactive salary increases.

A third of this sum is owed to Hebrew University lecturers, and Meichouam said he "had no idea where this money would come from. So far, the Government has shown no inclination to provide it."

Meichouam fears that if the lecturers do not get their arrears during September, they will either declare a work dispute, leading to a nationwide universities strike, or to labour court action, in which a judge will order us to pay up. As we will be unable to comply, we will be in the ludicrous position of having to declare bankruptcy and shut our doors."

All Israel's universities receive 70 per cent or more of their budgets from the central government. A recent across-the-board budget cuts have forced the universities to disburse six per cent of their staff, including some junior, unsecured academics.

Meichouam worries that if this trend continues, the universities will be in the end of "new blood" today will in the years to come inevitably lower the level of research and scholarship.

Meichouam pointed out that over the past decade the universities' budgets in real terms have taken a 30 per cent cut, "which has almost killed the fat and bled the life out of the universities. Further cuts will mortally wound the Israeli academic infrastructure."

He said that the National Library, which doubles as the Hebrew University's central library, has taken a 70 per cent budget cut in real terms over the past seven years.

Top six universities must cut spending by £10m

from Lionel Cohen

NIJMEGEN

Faced with the need to bridge a record budgetary deficit and with the government's own planning bureau forecasting stagnant economic growth, the Dutch government's 1981 budget proposals massive spending cuts in education and social welfare. Higher education will be especially hard-hit; six of the biggest-spending universities must together make economies of no less than £10m before the end of next year.

Last month an emergency meeting of the Federation of University Staff Unions (COPWO) met to consider a university-wide teachers' strike over the coming four years—say, 10 per cent of the jobs "lost" from the university budgets.

In addition, as the Minister himself was quick to point out, some two and a half per cent of all university administrative and technical staffs are in any event lost by "natural wastage" each year.

There are therefore reasonable long-term prospects of a "solution" to the present difficulty as far as existing staffs are concerned, even if it means that hardly any new work will be made available for new graduates.

But the brunt of the squeeze must be borne over the next 15 months and a spokesman for the University of Utrecht—which alone faces cuts of nearly £3m next year—suddenly criticized the Minister's sudden change of policy under which no less than 100,000 jobs required savings on personnel expenditure must be achieved by December 1981—in his view an unnecessary extra pressure on the already difficult employment situation.

Harden hit by the already-imposed recruitment freeze in the universities are the many well qualified job applicants and senior students who would otherwise now be starting work in new posts or established universities, the filling of which had already been programmed by the relevant faculties and approved by their administrative boards. In one faculty alone in the University of Amsterdam, no less than 1,000 students' places for coming years have already been reserved.

Have reportedly had to be accepted, while faculty has had to drop plans to fill five new lecturers, even though these have been through all stages of approval and are urgently needed to cope with this year's rise in student numbers.

Seen against the wider background of the Dutch government's long-running proposals to modernize the entire structure of university education—and particularly in relation to plans for the introduction of two-phase undergraduate study programmes from 1985—these latest economy measures are being widely interpreted as a serious setback for the policies of the Education Minister and his (Liberal) wing of the Liberal-Christian Democratic alliance now in office.

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15th-19th Sept 1980

Robin McKie reports on the recent British Association for the Advancement of Science meeting

'Liberate A levels' proposal

Science A level curricula should be freed from "the onerous" of university requirements to encourage more academically gifted children to take up science, two speakers from York University urged in a speech to the education section of the meeting at Salford University. Professor D. J. Waddington and Dr J. N. Lazonby, of the chemical education department, proposed that general science as a unified subject should replace present separate classes in subjects such as biology, chemistry and physics at schools for those under 16 years.

If this was carried out, the two speakers argued that the present trend for many bright pupils to give up science subjects when they are only 13 years old would be halted. Integrated science would put science in its social and cultural context and encourage far greater numbers to continue with its study.

"The criteria of the 1960s were subject-centred with one eye on the demands of higher education," said the two men, in their own subject, chemistry, they said. "We must justify our courses in terms of how it leads students to a realization of the importance of chemistry, and this includes how it helps us to understand the environment in which we live, as well as the economic and social aspects of the subject."

Once university lecturers had resigned themselves that students would know less when they arrived, but were more enthusiastic about science, they could easily redesign courses to meet the challenge.

It is really beyond us to devote a little of our time and skill and energies as teachers to devising introductory courses harnessing the talents of university departments of chemistry and education?," they asked. "Let us then liberate A level curricula from the constraints of what the university requires. Once this has been done we, in turn, liberate O levels."

There were drawbacks to such a major restructuring, Professor Waddington and Dr Lazonby admitted. Already there were insufficient specialist teachers in certain science subjects. By requiring them to teach other science subjects would only overstretch already strained resources.

Part of the answer was to improve the training of teachers in the importance for the future, although probably the single most important influence on all the different variables lay with universities.

Mrs Williams' call to reform

Broader based O and A level courses and university education systems are needed to bring an end to the system which allows 13 or 14-year-old children to either abandon almost all of arts or science, Mrs Shirley Williams, former Secretary of State for Education, told the conference.

In future education should also include teaching about science, electronics, economics and society to prepare people for the cultural changes to come and to provide a broad foundation for training for new professions, she added.

Mrs Williams urged the Government to implement the Labour government's plan, agreed with the TUC and the CBI, to set up industrial training for all school leavers.

"I do not believe any boy and girl is properly prepared for work by being taught at school to be an employer or unemployed person, the only thing behind them, a couple of O levels or a handful of CSEs."



This science course will be the last chance many of the 13 and 14 year olds have to study the subject.

Maths inquiry fails to get teacher response

by Patricia Sentinelli

Double as to whether teacher training institutions provided relevant applicable training in mathematics were expressed by Dr W. H. Cockcroft, chairman of the Committee Inquiring into the Teaching of Mathematics.

Dr Cockcroft, who is vice-chancellor of the New University of Ulster, said that as part of the inquiry they were seeking evidence from both institutions and experienced teachers as to the relevance of their training in maths.

So far there seems to be an imbalance. Colleges have been telling us they do a good job but I am suspicious of the lack of response from experienced teachers.

Had it been 50/50 I would have been satisfied but since it is not 50/50 I have begun to wonder if it is not the Cockcroft committee as it has now become known, was set up by the Government in 1978 to consider the teaching of maths in primary and secondary schools.

Particular regard to the maths required in further and higher education, employment and adult life generally and to make recommendations.

The committee is not due to report until next year but a preliminary draft of some of its conclusions may be issued in the next two months. So far, the committee has received 860 pieces of written evidence, commissioned four research projects to different aspects of mathematics and has added a comparative study of mathematics education through visits to countries such as Denmark, Germany and Holland.

However, Dr Cockcroft pointed out that it still remained to be seen whether their report would be taken up by the current Government. He said that the committee had received evidence from the teaching of maths in primary and secondary schools.

Dr Cockcroft, who is vice-chancellor of the New University of Ulster, said that as part of the inquiry they were seeking evidence from both institutions and experienced teachers as to the relevance of their training in maths.

Particularly concerned by evidence that various documents inquiring into the performance and assessment of mathematics were not being disseminated to teachers.

Discussing the results of the Salford Numeracy Project which had accumulated almost 20,000 mathematics test results, Dr Michael Harris, of Salford University, said it was vital that industrial tests being given to school leavers to assess their mathematical abilities should be completely altered in cooperation with schools.

Dr Harris described the tests as unfair, confusing, incorrect and unlikely to provide a true assessment of school leavers' abilities.

There was a vast difference in emphasis in industrial tests compared with that which children expected on the basis of schools tests. Changes in the design would give young people a better chance to prove their competence, he said.

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Britain accused of neglecting dissidents

Britain's ignored socialists have denounced for their acquiescence in failing to properly their opposition to treatment of scientists in and other countries.

In an attack made at the national meeting, Professor John H. of Bristol University, a physics laboratory, said they had no public defence for years in this country in the person of Soviet scientists.

"For a country that prides on its moral and legal conscience, this is a disgraceful neglect," he said.

Today's science was connected with politics, it became a whole branch of knowledge through vast state subsidies activities and through its influence in escalating arms race.

To than build a sense of solidarity for a scientific community in deep trouble with a government calls for a moral responsibility that it was who characteristic of some and their backers," Professor H. said.

He argued that it was British scientists themselves who clear that they were not out to the ill-treatment of scientists in and other countries.

The crux of the matter, Prof. Ziman believed, was the role of national learned societies. Their governing bodies control the flow of information and a positive lead in such matters only be interpreted as collusion with the enemies of science and learning?

"The apologists for the status quo must not be allowed to control the flow of information and a positive lead in such matters only be interpreted as collusion with the enemies of science and learning?"

Understand why the trick was first perpetrated. It is necessary to go back to 1968, the year of student revolts, when the ASA held its annual meeting in Boston. In such a year, a meeting of the ASA, the world's most important discipline was expected to generate some excitement, and it did.

At the time, a session of the ASA was held in London. The session was held in London. The session was held in London.

He urged that a clear should be made between science and technology on the one hand and the other, should then be financed, to their relative contribution to the British economy. The big need is an "industrial revolution" fund "big science" at the technological level, Professor Wray said.

An engineering development council, on the other hand, should be established and should be financed by the Government and the Department of Science. Such a body would then be able to pick up the industrial research and development projects to their application phase.

"The existence of such a body would really take engineering research and development out of the control of science," he said.

The problems caused by the development of a new technology were being worsened by United Kingdom grant bodies, particularly the Science Research Council, who were not taking account of the needs of industry.



A swell facade but what a lot of rot on the inside

There was something especially appropriate about the 75th anniversary of the American Sociological Association meeting in New York's Rockefeller Centre. New York's skyscrapers are rapidly disintegrating as a result of the city's air pollution. Every so often, clouds of mercury descend themselves, and plunge hundreds of feet into the streets below. The task of holding the crumbling edifices together has been entrusted largely to a small band of Mohawk Indians, famous for their bravery and survival, who climb up the towering masonry patching the brickwork back into place. The Mohawks attach much prestige to the perils of their job.

American sociology, too, is a magnificent edifice which is rapidly disintegrating. In the case of sociology, the skyscrapers are the journals and the Mohawks are the editors. The task of holding the crumbling edifices together has been entrusted largely to a small band of Mohawk Indians, famous for their bravery and survival, who climb up the towering masonry patching the brickwork back into place. The Mohawks attach much prestige to the perils of their job.

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Peter David reports from New York on the 75th anniversary of the American Sociological Association where unity is the name of the game

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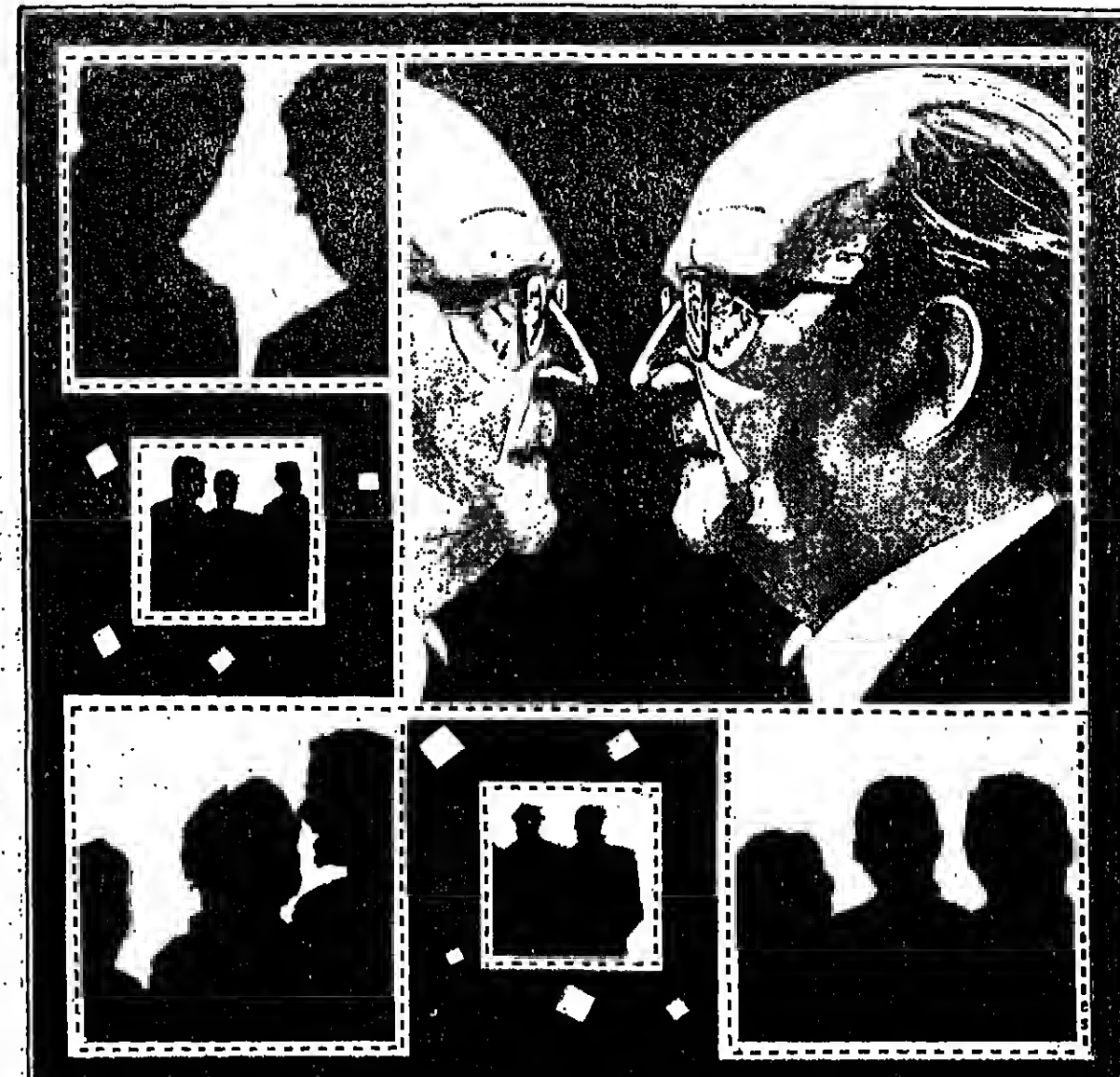
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500 sociologists could claim to have delivered learned papers across a dazzling spectrum of subjects. The cumulative impression was of a vast and dynamic discipline incorporating a myriad theoretical stances.

The reality was somewhat different. Many participants at ASA meetings are almost wholly uninterested in the substance of the papers being presented. A large proportion use the meetings as a way of finding jobs or hiring new talent. An intricately organized employment bureau runs throughout the conference and the hotel corridors are peppered with names of anxious academics wearing suits and dark expressions, sure signs that they are in the market for new posts.

Even the senior sociologists present—and the ASA is regularly attended by luminaries whose names would be familiar to undergraduates everywhere in the world—confess that they are more interested in meeting friends and renewing contacts than in doing or discussing sociology.

The Russian dynamism is nevertheless successfully sustained by the trick of cooption engineered by Rossi and his "old boys". Before the floodgates of debate burst open in the 1960s, only the academic elite had spoken at the programme, and the task of the younger was to listen with docility to the paragon of their seniors.

After 1968, interest groups like blacks and women were swiftly broagued into the conference. Instead of finding themselves on the regular programme, however, they were given separate programme sections of their own. They were, in effect, put into separate compartments to talk among themselves, where no uncomfortable ideas would pollute the mind of mainstream.

The basic arrangement smoothly shifted debate, as it was intended to. Yet it also had a very real need to be individual: ecologists to feel they had a niche of their own within the sprawling and amorphous meetings. It did not take long for marginal interest groups to realize that all they needed to do to gain academic credibility was to claim their own small slice of the programme and set up a newsletter or email journal.

If the migration into private sections were confined only to marginal splinter groups, the consequences might be less serious. But the major components of the discipline have also been compartmentalized and locked off. In the late 1960s the ASA had already seen the

defection of many of its Young Turks when they set up a separate and radical Society for the Study of Social Problems. Later, the symbolic interclassiness set up their own society. And even within the ASA, mainstream subjects like Marxism, and indeed social theory itself, have been banished into special sections which only devotees need attend.

As one of the architects of cooption, Peter Rossi does not believe that this genuine debate has been sufficed. He scribbles a long, tranquilizing of ASA meetings to a different. In American and British academic styles. "Whatever debate is going on is not going on in public. It is going on within departments, between colleagues and between teachers and students. American academics are unlike the British, who are polite to each other, face-to-face but vicious in print. We are exactly the opposite."

Yet there is evidence that the ASA does have a real prophylactic effect on the life of the discipline. This is particularly clear in the case of two of the most potentially revolutionary theories in contemporary sociology—feminism and Marxism. Both appear on one level to be entering a fruitful period in American sociology.

For the first time over, the ASA's principal journal, *The American Journal of Sociology*, is to devote an entire issue to young Harvard marxist, Theda Skocpol. And Tomlinson, in one form or another, is taking up an ever bigger proportion of the debate at ASA meetings. Yet neither the marxists nor the feminists seem likely to have much impact on the political or theoretical posture of American professional sociology.

The growth of feminist sociological perspective, for example, has been hindered as much as helped by the creation within the ASA of an influential pressure group, Sociologists for Women in Society (SWIS). The existence of SWIS blurs the distinction between sociologists looking after their professional interests and sociologists who are trying to develop a sociology of sex and gender.

Much of the work of the SWIS is already nicknamed "the old girls' network"—it is devoted to helping women with their careers.

Yet the SWIS also has a hand in organizing its substantive sessions on feminist sociology. Much of the time it papers on rape, marital rape and incest is of indifferent quality and could wash safely over the discipline for years without leaving the

slightest trace. Meanwhile, the good work, and there is plenty of it, is kept by the existence of the SWS in an almost watertight compartment where it is seldom allowed to mingle with the mainstream.

The marxists, too, are insulated from the central concerns of the conference, and appear reluctantly to have donned the mantle of esoteric scholarship rather than political activism or even theoretical engagement with the discipline as a whole.

This year, there were signs at the meeting that even the architects of the cooption strategy were becoming worried about the lack of debate. Rossi himself, in his presidential report, referred to the intellectual paralysis which had resulted from the decision to accommodate diversity by availing sociological disagreements.

He added: "What this means is that the ASA is hampered in providing intellectual leadership for the profession and in representing the profession on substantive issues. The rest of our society, correspondingly, our journals, reflect more diversity than boldness and our annual conventions present a bewildering amorphous array of topics and styles."

In private, Rossi admitted that the conference had made it pay too high a price for unity. The ASA should now revive the political and philosophical arguments it had worked so hard to defuse, and let the factions fight it out.

What has been done is not always easily undone, however. Lewis Coser, one of the more influential former presidents of the ASA, believes attempts to reunify sociology now would be quixotic. The functionalists' theoretical orthodoxy had collapsed a decade ago and its possible successors—contending, non-Marxist, symbolic interactionism—had settled into geographically dispersed academic groupings which showed no signs of communicating with each other.

Nor is there much evidence of any real economic competition for the revival of the factional politics that Rossi now advocates. The association decided this year to start an annual journal on theory. Choosing an editor would, in a small way, have entailed choosing between a number of competing theoretical perspectives. So the association decided instead to appoint a panel of editors—Peter Berger, Randall Collins and Irving Zaretsky. Between them they cover virtually the whole spectrum. American sociological theories are still battling up the summit of the discipline's shadow. Who is watching the foundations?

David



No single image

Impressions of African writers

1930s; only after the deinstitutionalisation of mental health care in the 1960s and 1970s did the Abbey become respectable and its status as a national theatre no longer provokes bitter controversy. Over what should be its followers' ideal respect for the past, the Abbey has been torn and with it much the history of the theatre that it has made the Abbey unique.

A new danger nowadays is that the history of the theatre's founding may become too well known. The story has been told perhaps too frequently at the private weddings and marriages, the christenings and the occasional religious occasions; the risk however, familiar to shedders of tears, is that the story will be told from the moment in 1838 when

sheldon press

BOOKS

Chessboard history

Government and Community: England 1450-1509
by J. R. Lander
Edward Arnold, £12.95 and £5.95
ISBN 0 7131 6151 5 and 6152 3

Professor Lander's *Conflict and Stability in Fifteenth Century England* is a deservedly successful brief introduction to its subject. It has been invaluable in weaning students away from an image of the fifteenth century as nothing but disorder and civil war. Lander's journal articles are an indispensable part of that calotatopical of late fifteenth-century politics which has taken place over the past twenty years; their republication in hardback as *Crown and Nobility, 1450-1509* is a boon to the student and a pleasure to the reader. His latest book, in "The New History of England" series, provides an interpretation of the period, at much greater length than in *Conflict and Stability*, but far less specialist audience than *Crown and Nobility*.

The first half of the book contains chapters on the economy, the structure of government, royal finance, religious life, and "education and the arts". The chapter on religion is an excellent analysis of the working of the church and the quality of religious life; Lander eschews the catastrophic interpretation, seeing neither heroic virtues nor appalling vices in the English church, and ascribing the origins of the Reformation to rising expectations both clerical and lay, confronting a state of comfortable mediocrity and the excesses of popular piety. The discussion of royal finance will be valuable; especially for its scepticism about the effect of the most trumpeted reforms, the more efficient administration of the crown lands, and "fiscal feudalism". It is also useful to have proper consideration given to the customs revenue. The chapter on the economy, however, is brief and unbalanced. Lander observes that 90 per cent of the people "lived more or less directly from the land", he ignores them in favour of landlords and merchants. There is no attempt to analyse the complicated social structure of the village, nor to explore the differing circumstances of the yeoman with a substantial holding and the smallholder, or landless labourer.

The second part of the book is devoted to a detailed discussion of politics. A chapter on the 1450s leads to an extended treatment of Edward IV, focusing naturally on relations with the nobility, and on foreign policy; a balanced picture, with Edward doing reasonably well in a near-impossible situation. The compass is on Edward's reliance at first on a few trusted followers, like Herbert and Hastings, whose power he built up in the localities; later, on members of the royal family, sometimes with little regard to probable long-term consequences, and often at the expense

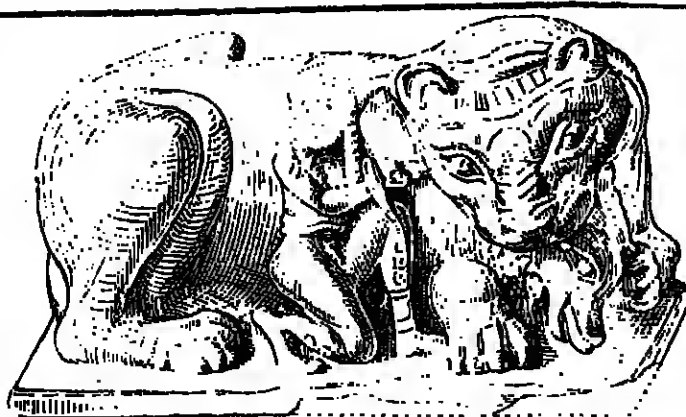
of low and justice. The treatment of Richard III will not please the followers of the White Boy; Richard was probably responsible for killing his nephews, and was widely unpopular in the south. Even in the north, Lander suggests, for all the partiality Richard showed northerners during his reign, he may have been less universally popular, and less competent, than is sometimes suggested. Henry VII, who gets only thirty pages, against Edward IV's hundred pages—is discussed largely in terms of foreign policy and relations with the nobility. Insecurity is the keynote of the domestic policy developing into effective but personalised coercion.

The division of the book blunders readability. The survey of finance is oddly dislocated until the reader grasps the politics; while the political narrative presses rather relentlessly on in a way unlikely to encourage the newcomer. This is perhaps inescapable. The politics of the period do largely revolve around the relations of king and nobles; and the reader must understand about land law, inheritance, and mortgage to make sense of events. Professor Lander is to be congratulated for his very clear exposition of the intricacies and general significance of events such as Edward IV's baronage appropriation of the Mowbray inheritance on behalf of his younger son. Like, say, eighteenth-century politics, this sort of personalised chessboard history is an acquired taste requiring considerable knowledge before it begins to fall into place.

More fundamentally, there seems to be a divergence of view between Professor Lander and the general editors of the series, A. G. Dickens and Norman Gash. Why, after all, does the first volume of a "History of England" begin in 450? What has happened to all that went before? (Including, in the words of one of the general editors, "the wonderful fourteenth century".) Presumably the intention was to concentrate on modern England; but then it would naturally fall to the author of the first volume to discuss the transition from "medieval" to "modern". Professor Lander is much too sensible, much too sensitive, to have any truck with that meaningless polemic so unfortunately built into the institutional structure of history faculties; he very nearly succeeds in avoiding the word "medieval" at all. All that is to his credit. But it does leave his book oddly unsupported at its beginning. There is little attempt to set the background; references to earlier events are, for the most part, purely knowledge. Perhaps the publishers will think again and expand what is proving to be a notable and distinctive series into a real "History of England".

C. S. L. Davies

C. S. L. Davies is a fellow of Wadham College, Oxford.



Ivory group from Orthis sanctuary. An illustration from The Ancient Spartans by J. T. Hooker (Dent, £12.00).

Piecemeal enclosure

The Open Field System and Beyond: a property rights analysis of an economic institution
by Carl Dahlman
Cambridge University Press, £11.50
ISBN 0 521 22881 6

Debates have been reopened recently on the origins of the open fields, the scattering of holdings within them, and their transformation by enclosure; this book is a contribution to those debates. Carl Dahlman asks why the commons or wastes were communally owned, why the arable fields consisted of scattered strips in large fields and why the villagers exercised a formal collective decision-making procedure. His answers are that communal ownership and the formation of large open fields were essential for maintaining the intimate relationship between livestock and grain and for the large-scale grazing of animals, that strips were related to the vagaries of the plough and topography, and that the persistence of scattered strips was partly class evolution and partly an incentive to farmers to participate in a collective decision-making organisation.

These broad conclusions are unfortunately marred by overstatement and historical inaccuracies. Dahlman wishes to explain his typical open field village, which he terms an "economic institution". He does not seem to appreciate that open field villages were about 1750, had already been substantially built into the institutional structure of history faculties; he very nearly succeeds in avoiding the word "medieval" at all. All that is to his credit. But it does leave his book oddly unsupported at its beginning. There is little attempt to set the background; references to earlier events are, for the most part, purely knowledge. Perhaps the publishers will think again and expand what is proving to be a notable and distinctive series into a real "History of England".

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A career which encapsulates the progressive tradition

Portrait of a Progressive: the political career of Christopher, Viscount Addison
by Kenneth R. E. Burge
Oxford University Press, £15.00
ISBN 0 19 224494 X

The career of Christopher Addison throws light on two important aspects of the political scene of the early 20th century. It exemplifies the powerful impact of historical continuity that shaped the political thinking of the modern Labour Party, and it helps to explain why, after several decades of ideological dominance, the modern Labour Party has fallen into a deep political crisis.

Dr Christopher Addison was elected to Parliament as Liberal member for Hoxton in January 1910. He rapidly became identified with the progressive wing of the Liberal Party.

George's parliamentary secretary at the Ministry of Munitions, where he acted as a leading practitioner of the progressive tradition. In 1916 he became Minister of Health, a position of great importance. In 1918 he was made Minister of Reconstruction, charged with the task of rebuilding the country after the war.

Warlike collectivism made a profound impact on Addison's political thinking, and as Minister of Health he was the main Conservative spokesman in the coalition government. He was a leading figure in the efforts to build the homes for heroes, prompted by Lloyd George's vision of the post-war world.

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the British Commonwealth, and in entering Labour's welfare state and nationalisation programmes through the House of Commons. Addison died in December 1951, two months after Labour had fallen from power. In what was probably the most crucial election of British post-war history, as the Morgans and the Addisons, the progressive tradition in British politics found its end.

the age of Addison. This chapter, which is a masterpiece of historical writing, with its distinctive blend of historical sympathy and political analysis, is a masterpiece of historical writing, with its distinctive blend of historical sympathy and political analysis.

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Synthesis

An Historical Geography of Europe 1500-1840
by N. J. G. Pounds
Cambridge University Press, £12.95
ISBN 0 521 22379 2

Professor Pounds writes "a history of the world as it has been seen in the field of geography in his examination of human-made features which have influenced the course of history and have been influenced by it. The primary purpose is to provide a synthesis of the history of the world as it has been seen in the field of geography in his examination of human-made features which have influenced the course of history and have been influenced by it.

Professor Pounds tackles the huge quantity of sources with a customary vigour. He provides an eminently readable synthesis. He combines a subtle understanding of regional and local variations with an unflinching breadth of vision. The result looks remarkably like an explicit attempt to provide a synthesis of the history of the world as it has been seen in the field of geography in his examination of human-made features which have influenced the course of history and have been influenced by it.

Throughout there is a confuence of nature—farms, forests, towns, and cities—each with its own character, each with its own history. The result is a synthesis of the history of the world as it has been seen in the field of geography in his examination of human-made features which have influenced the course of history and have been influenced by it.

No less than 58 pages are devoted to a valuable bibliography of the sources of the book. The bibliography is not only a list of sources, but a synthesis of the history of the world as it has been seen in the field of geography in his examination of human-made features which have influenced the course of history and have been influenced by it.

Michael Turner is lecturer in the department of economics and social history at the University of Hull.

Hugh Clout is lecturer in geography at the University of Hull.

World food prospects

Food, Energy and Society
by David Pimentel and Murcia Pimentel
Edward Arnold, £9.95
ISBN 0 7131 2761 9

The Growth of Hunger: a new politics of agriculture
by René Dumont and Nicholas Cohen
Marion Boyers, £6.95
ISBN 0 7145 2641 X

Substantial complexity surrounds attempts to form a balanced view of world food prospects and the policies designed to secure the future. Obvious technical problems include understanding demographic change, analysing producer and consumer responses, reviewing energy needs and availability, climate change, and gauging the pace of technological change. Compounding the difficulties is the sheer variety of national and international agricultural policies and the problem of securing any form of political agreement to necessary initiatives. These three books overlap in covering various aspects of the world scene, although each approach it in a different way.

David and Murcia Pimentel's work (in a new Arnold series on resources and environment) is focused primarily on basic science rather than on policy analysis. Their objective is the measurement of both renewable and fossil energy use in various agricultural systems from the simplest hunting and gathering to the most sophisticated.

A sample of their perceptive search for raw data is the estimate that the United States alone consumes 100 million barrels of oil per day. The authors are far too confident to make the estimate that the United States alone consumes 100 million barrels of oil per day. The authors are far too confident to make the estimate that the United States alone consumes 100 million barrels of oil per day.

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color requirements which could have grown readily in less skilled hands, the book is in fact easily read and should prove immensely useful for reference purposes.

Both capitalism and state socialism are regarded as being detrimental to the interests of peripheral less developed countries. Unequal exchange is seen as the factor which forces the third world to the wall. Unfortunately the argument, as it is set out, is not entirely convincing and is indeed regarded as manifestly unproductive. Evidence is often anecdotal and makes no use of standard economic statistics, the authors' views about the evils of agricultural border in the obsessive, and the outright condemnation of the world scene, are dogmatic and zero knowledge of the principle of comparative advantage.

Wrongheadedness reaches its peak when developed countries are soundly condemned for spending money on their own products. The authors clearly feel that "money" given in aid would somehow be of greater value if its counterpart was not made up of "goods" of developed-country origin. How simple life would be if this novel proposition were true. The danger in the persistently counter-dominant tone of the Dumont and Cohen approach lies in the possibility of its provoking a counter-reaction. When the motives for every action, apart from the value of the action itself, are dogmatically held to be self-interest it is difficult to feel enthusiasm for any aid programme.

This is an unfortunate reaction to a book which has concerned authors in other sections of the book to be on a firmer ground. In particular their analysis of the comparative failure of the Green Revolution is well done. They see it as the result of misplaced adherence to agricultural science, and in line with the social and institutional capabilities of developing nations. The inspiration of Schumacher is clearly in evidence in this argument and it is regrettable that what could have been a coherent thesis has been obscured by unduly bias and by unattractiveness in economic analysis.

John Tarrant, of the University of Hull

Circles: a mathematical view
by D. Pedoe
Constable, £1.75
ISBN 0 486 63698 4

The first edition of this book appeared 23 years ago and was hailed by many mathematicians as a veritable little gem. Despite the passage of time, it is not only a pleasure to read, but a pleasure to read. The book is a pleasure to read, and it is a pleasure to read. The book is a pleasure to read, and it is a pleasure to read.

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Although the general conception of the book is commendable, there have been several unfortunate slips in execution. Faults include too many unexplained graphs, and errors in economic analysis, lack of use of the concepts of consumer and producer surplus, and some times a rather dated style which makes the book seem out of place. Readers might also have preferred to trade off some of the detail relating to the United States and the EEC, where there is already a surplus of standard reference material, for more on politics and economics in the third world.

G. H. Peters

G. H. Peters is Director of the Institute of Agricultural Economics at the University of Oxford.

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An informed society

The Computerisation of Society
by Simon Nora and Alain Minc
MIT Press, £7.50
ISBN 0 262 14031 4

Really is there such an opportunity to look into the heart of a nation as that given by this remarkable report originally entitled "Informations pour le Service de la Société". It was commissioned directly by President Giscard d'Estaing, and was designed to point the way to a French national strategy in the face of encroaching "informationisation". It is a masterpiece of analysis, and it is a masterpiece of analysis. The book is a masterpiece of analysis, and it is a masterpiece of analysis.

The report, which was originally published in France in 1978, is now available for the first time in an English translation by the MIT Press—entitled, both clumsily and inaccurately, *The Computerisation of Society*. It is startling to find, indeed, in its brief format.

Denis Bell's preface rightly drew attention to the little known, but remarkable, fact that elitism in France has been so perfected that all senior civil service ranks are drawn annually from the top 10 per cent of one institution—the Ecole Nationale d'Administration (ENA). This puts the "occasional English" writer about "Oxbridge" in a very different light. The authors, Simon Nora, Inspector General of Finance, and Alain Minc, a lower-ranking civil servant, were naturally drawn from that elite. (At least the computerisation of the French report, *The Future with Microelectronics*, was deliberately commissioned from outside Whitehall.) As such, the book is written from an establishment viewpoint, and one so secure that the authors show one of the great strengths of a typical British civil servant.

Equally remarkable is that this report—a widely acclaimed best-seller in France—unashamedly proclaims the perpetuation, both of the social and economic status quo, and of French sovereignty in matters commercial, technical and social, as an unqualified good and goal.

The French concern about the information process is summarised by the question, "How can we retain national control under the massive multi-faceted impact of the convergence of microelectronics, computers and telecommunications?" The answer is simple: the authorities must decree. And as for using automation to reduce work hours, the authors demand, as an option, see hedonism, causing congestion in leisure facilities and thus debasing the quality of life. The response to the new technology, as the authors see it, must be to learn from Japan; but to do so Japan does more subtly.

coordinates of its representative point. Many examples are given to show how properties of circles in the plane are transformed into properties of points in space, and how our knowledge of the latter can thereby be used to supplement our knowledge of the former.

The next chapter takes up the important topic of non-Euclidean geometry, using a non-sensical analytical approach, without the historical argy-bargy that can so often be distracting and confusing to a beginner. The author develops the theory of the unit disc in the Argand plane, along with the Möbius transformations that carry it into itself, and comes rapidly to an account of the Poincaré model of hyperbolic geometry.

The final chapter is ostensibly to do with Steiner's proof of the isoperimetric property of the circle, namely that of all closed plane curves with a given length, the circle is that which encloses the greatest area. But the real theme of this chapter is the problem of giving precise definitions to terms such as "length" and "area". These are, of course, essential ideas that must be assimilated by any student intending to understand the analytical background of integral calculus. Apart from some minor corrections, and the addition of a collection of problems (with solutions), this edition differs little from the original Pergamon edition, and the price is still very reasonable. No school or undergraduate mathematics library should be without it.

J. A. Tyrell

J. A. Tyrell is reader in mathematics at King's College, London.

Methods of processing images

Digital Image Processing
by Kenneth R. Castleman
Prentice-Hall, £18.20
ISBN 0 13 212 365 7

Written at a quantitative level for a graduate course in image processing, this book is a masterpiece of historical writing, with its distinctive blend of historical sympathy and political analysis.

under any flag of compromise. Addison's career was a masterpiece of historical writing, with its distinctive blend of historical sympathy and political analysis.

The genesis of the material does not imply any limitation of its coverage. Image averaging is illustrated by examples from biophysics, the detection of motion by the capillary transport of erythrocytes and motorway traffic, and the tracing of a pattern classifier by an example of pattern recognition as applied to optical images of chromosomes. It soon becomes clear that there is a uniformity of approach to the digital processing of images in all fields. Such a generalization must be treated with a degree of caution by those beyond this level, when the image interpretation may be dominated by the specific details of the imaging process—for example, the partial temporal and spatial coherence of the light source, the image-forming wave in an optical system or the effects of beam damage in imaging with electrons.

There are three main sections—basic techniques, linear filtering and selected applications. Techniques such as image compression and image coding are covered. The first section includes image enhancement and image processing, a particularly clear treatment of histogram equalization and histogram operations to correct for image distortions and gray level interpretation.

The second section deals with the limitations of sampled data and pro-

vides an introduction to Fourier-based image operations and correction for the effects of noise in the image. The treatment is not extended to include, for example, auto-correlations and cross-correlations. The applications cover image restoration, two topics from statistical pattern recognition—namely, first finding defined objects within an image and then classifying or identifying the object on a statistical basis. The final chapter concerns three-dimensional imaging and has brief sections on the optical microscopy of thick objects, tomography and stereo pairs, and so on.

The range of the material is inevitably limited, but the treatment is uniformly clear and authoritative and provides an excellent basis for reading the specialist literature. One limitation is that discussion of image processing software is limited to the VICAR (Video Information Communication and Retrieval) system developed at JPL, as there are other software packages which have been developed in Europe and the United States. However, the book does fill a real need.

R. E. Burge

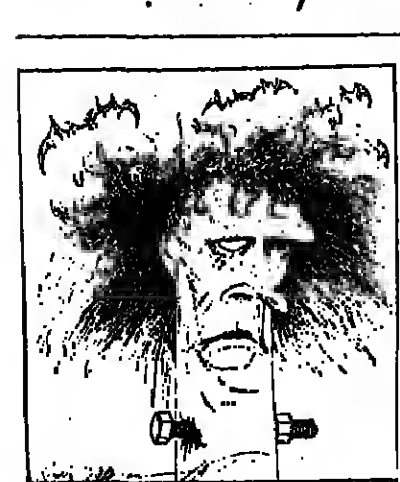
Professor R. E. Burge is head of the physics department at Queen Elizabeth College, University of London.

Ray Curnow

Ray Curnow is a director of Probit Consultants Ltd.

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Laurie Taylor



"Geoffrey!"
"Gordon!"
"How very nice to see you back."
"And you, my word, you're looking healthy."
"Yes, that's what everyone's been saying. Beginning to fade a bit now, mind you, but still pretty impressive, isn't it?"

"Quite sensational. My word. Turn up well. You must have put in some hard simulating."
"Not really. No. Little bit of swimming in the old river. But mostly sitting around and sketching. Went over to Volterra a lot, you know; got rather involved with the Etruscan stuff."

"How splendid. Actually you must have been one of the fortunate few. Weather reports from Northern Italy sounded pretty shocking."
"Can't speak for anywhere else. But it was blue sky all the way in our little neck of woods."
"Oh jolly good. That's what one needs. Any trouble getting back?"
"Travelling?"

"Yes, you know. Battle of Dunkirk. Striking rows floating around with water horses. All that sort of thing."

"Oh no. We got the tip-off on Radio Four and headed straight for Oxford. No problem. Very half empty. The whole thing was a dud. How about you? You're looking well. Scotland again wasn't it?"

"Hardly again. Only the second year running. But absolutely marvellous couple of weeks."
"Good. Good. You must have needed that after last term. Weather OK?"

"Well, of course. You have to take that into your stride. You can't expect all culture, all beauty, all scenery and all that, and breakfast, a dinner, a night and a little bit of sunshine. But pretty clean on the whole. Bit of early morning rain, but it dropped down to the Edinburgh level for a couple of days, and then the sun came out."

"Get it, though, anything decent? Something was saying it was a booked up this year that they had to spend most evenings avoiding the drunks on Princes Street or watching the 'Krisztina' Tattoo."

"Oh, that's rough. If you're after high culture, have formal fringe people and there was some splendid stuff around. A new Doris to play and some first-rate feminist mime."

"Sounds fascinating. And how about the kids. Tristram got his grades all right, didn't he?"

"All but C and D. Damn tight better than Caroline or I expected, especially when you remember the stinking cold he had for that second history paper. Means good-bye to Sussex of course, but we think he's fine. Still on the hearing and writing. He's doing pretty well, as good as any other. Some interesting people there."

"Oh yes. I've heard fairly good reports about it. I must admit I've never understood why all the people who go to the party are so off to Sussex and Bristol. Some sort of ally alliance, I suppose. All well. Back to the office. Got your book back in yet?"

"Yes, managed to make the deadline this year."

"Well, that'll please the bureaucrats. Even if it does make a damn bit of difference to the library stock. Still, better do mine while I'm feeling fit after all that climbing. See you around, no doubt. Must keep in touch a little more this term. Come over for a meal, perhaps. I'll be in the term."

"Yes, that would be nice. A little holiday from the department and you'll begin to realize how much you miss your colleagues."

"Exactly."

LETTERS TO THE EDITOR

The closed shop and Leeds Polytechnic

Sir—I write in respect of comments made by Patrick Nuttgens in his column (THES, August 15) on the Leeds authority's decision to support the closed shop. The Leeds authority can answer for itself but it is necessary to put the record straight in so far as Nuffield's actions are concerned. Readers of the column will be forgiven for assuming that the director of this polytechnic returned from Vienna to discover a letter which was the first intimation of the union membership agreement. In fact the June 27 issue of the polytechnic's own internal News-Record, edited by the information officer, contained a considerable amount of information and comment on the matter including the Liaison Committee was negotiating with the authority. It is difficult to see how the Leeds authority could be accused of not being fully informed of the matter. The Liaison Committee was not unreasonably to assume that a copy reached Dr Nuttgens.

The Leeds authority offered us the opportunity to negotiate a union membership agreement and, after consideration in the branches, this offer was accepted. Existing members of Nuffield are in no way affected by the UMA but, subject to broad consultation, all new full-time lecturers will be required to join. No one is precluded from joining any other association.

If I may conclude with a personal view. The struggle to defend the pay and conditions of all members of academic staff, to say nothing of the more general but vital defence of the public sector further and higher education service, is an expensive business. It is paid for out of the subscriptions of Nuffield members. The recent results of the 1979 and 1980 pay negotiations are good examples. The final outcome, on both occasions, was substantially more than the employers were prepared to offer. The many positive tribunal decisions on Crombie cases provide a further example.

These advances are of actual or potential benefit to all academic staff but not all have been prepared to help foot the bill. I do not, however, recollect anyone refusing to accept the proceeds. The Leeds UMA will, in one area, help to ensure that there are fewer such "free-riders".

Yours faithfully,
MIKE WILKINSON,
Branch Secretary,
National Association of Teachers in Further and Higher Education,
Leeds Polytechnic.

Engineering education

Sir—Several of the articles relating to engineering education (THES August 15) are examples of muddled thinking in this area.

First, with regards to the Finniston report: given the acuteness of the crisis in this (John Mac's) alone, THES August 5, would seem adequate; but its failure to research what engineers actually need to do their job, another example of it is to be expected. The report is being taken up. Mr John Sillan's apparent desire to defend Finniston, I hope, just opportunistic politics.

Secondly, in "Scientists are the graduates of tomorrow's world" we see the continuing cultural confusion in assuming that engineers are somehow failed scientists (or any other form of scientist, for that matter).

While it is true that engineers are some scientific knowledge, it is less than is often thought. A-level physics would be more than enough for most; they need communication skills much more.

However, more importantly, engineering necessitates quite different skills and attitudes to those of science. An engineer works to brief within time and money boundaries (he produces for 25p in a week what any fool could produce for £1 in a year); a scientist works to the drive of inner compulsion, meeting peer group standards. In engineering, the engineer has to be able to solve problems from various fields and intuition; he synthesizes; the scientist works within one field—he is analytic. An engineer becomes one by practicing engineering; it is possible in today's world to have a degree in engineering and then go on to do formal engineering education and training.

Thirdly, the confusion of engineering and mathematics. It would seem that, partly because of the high cultural status of mathematics, engineers are deemed to need to be adept at higher mathematics. It is the computer designers who make the unjustified

assumption that because all engineers use some mathematics, better engineers will use more mathematics. There is also the feeling among practicing engineers that they would be better able to read the technical journals if they had a better command of higher mathematics.

Both my research and that of many others has shown that engineering does not require mathematics above GCE O level standards; and this is true right across the spectrum from technicians to members of the engineering institutions. The engineers themselves even place enormous importance on such items as verbal and written fluency and self-confidence.

Thus the continued high loading of engineering syllabuses with irrelevant mathematics is doubly harmful: it discourages people from becoming engineers who may otherwise be good at the job, and it crowds out more relevant course material.

The pernicious influence of the engineering institutions, aided by the academic profession, has led to the virtual abandonment of the superior part-time route to engineering in preference to the five year plus industrial training route. To everyone else's detriment, using such expedient arguments as that the engineer needs all the time in full-time education to achieve the necessary mathematical (and scientific) ability.

This country needs empirical research to resolve the conflict between the contrary conclusions of the engineering and academic proponents. Given the immense service to the importance of engineering education, is it not ironic that we do not have a single Professor of engineering education? Or, as I know, even a Lecturer of engineering education? Perhaps ignoring the existing evidence is indicative of insurmountable cultural bias.

Yours sincerely,
IAN CLEMENTS,
Flat 1A, The Hawthornes,
Kew, Middlesex.

Links with South Africa

Sir—In his discussion of the APT's policy of an academic boycott of South Africa, (THES, July 7) Steven Lukes gives cogent reasons why he thinks that there is a strong political case against all relations with South Africa, but goes on to explicate hypothetical individuals who defy this policy on the grounds that they "fully appreciate" the case against them, that they "take account of the moral responsibility for their actions" and that they "do not intend to penetrate behind the facades and give clear support to this liberation struggle".

Any boycott which allowed exceptions on the basis of such vague and unprincipled good intentions, whose outcome would be decided only by the interested party would be worse than no boycott at all. I fully agree, as I do, that it is not possible to "take account of the moral responsibility" for one's actions. I fully agree that I take "full moral responsibility" for my actions; could I have taken responsibility for my actions? I have given sufficiently clear support for the struggle, particularly as the African National Congress has asked all who actively support liberation to boycott all relations with South Africa?

Good faith and private moral rectitude are not enough in a political action; the damage done by helping legitimate a racist institution cannot be undone by the purity of an individual's conscience and it is of little use purging the soul whilst one is in receipt of monetary rewards from such an institution. Official academic links with South Africa constitute such legitimization and the true supporters of liberation should not find it difficult to devise ways of engaging in the struggle which make no use of them.

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The high cost of sociology PhDs

Sir—As possessor of a doctorate in sociology, completed in the all too short time-span, and duly converted into fully paid lectureships in British universities but also into articles in books, we must be almost uniquely qualified to enter the debate on the high cost of sociology PhDs. The high cost of sociology PhDs is a complex issue, involving not only the cost of the PhD itself but also the cost of the research and the cost of the supervision. The high cost of sociology PhDs is a complex issue, involving not only the cost of the PhD itself but also the cost of the research and the cost of the supervision.

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The issues at Huddersfield

Mr Carlisle was probably wrong to refuse an inquiry into the dispute between the governors and staff of Huddersfield Polytechnic and Kirkstall Council. This dispute has become a messy mixture of murky local detail and of grand national, even legal, principle. Sir Frank Layfield may be able to deal with the former aspect adequately by examining in detail the two council audit reports which accused the polytechnic. In fact, it is intended as no criticism of his ability or independence to say that it seems unlikely that his intervention can deal at all adequately with the wider issues raised by the dispute which now include the rights of government under the 1963 Local Government Act to the degree to which the polytechnic possesses effective academic autonomy. The recent involvement of the Council for National Academic Awards has only underlined this, and, more important, aspect of the Huddersfield dispute. Only DES inquiry could have dealt with it effectively.

It is, of course, difficult to make even the most preliminary assessment of what is wrong and who is to blame. In any case it would be wrong to prejudice Layfield's report. But at this stage two tentative conclusions can perhaps be made. First, the rather lurid rumours of a conspiracy by Yorkshire authorities against the polytechnic and other higher education colleges should be discarded, despite the fact that a rather similar dispute seemed to be brewing up in Leeds until the council changed hands again in May. But relations between authorities and polytechnics may appear ugly.

Currently, most of our postgraduate students struggle to find their way through a maze of crowded libraries and under-resourced departments. Yet a necessary must be for an individually equipped office, a typewriter, a stationary telephone and a desk with a chair and a lamp. The SSRC ought to be fighting to ensure that these facilities are available to all students. The UGC and the universities should be fighting to ensure that these facilities are available to all students. The UGC and the universities should be fighting to ensure that these facilities are available to all students.

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